



ENERGY STAR® Program Requirements for Light Commercial HVAC

Partner Commitments

Commitment

The following are the terms of the ENERGY STAR Partnership Agreement as it pertains to the manufacturing of ENERGY STAR qualified light commercial HVAC. The ENERGY STAR Partner must adhere to the following program requirements:

- comply with current ENERGY STAR Eligibility Criteria, defining the performance criteria that must be met for use of the ENERGY STAR certification mark on light commercial HVAC and specifying the testing criteria for light commercial HVAC. EPA may, at its discretion, conduct tests on products that are referred to as ENERGY STAR qualified. These products may be obtained on the open market, or voluntarily supplied by Partner at EPA's request;
- comply with current ENERGY STAR Logo Use Guidelines, describing how the ENERGY STAR labels and name may be used. Partner is responsible for adhering to these guidelines and for ensuring that its authorized representatives, such as advertising agencies, dealers, and distributors, are also in compliance;
- qualify at least one ENERGY STAR labeled light commercial HVAC model within one year of activating the light commercial HVAC portion of the agreement. When Partner qualifies the product, it must meet the specification (e.g., Tier 1 or 2) in effect at that time;
- provide clear and consistent labeling of ENERGY STAR qualified light commercial HVAC models. The ENERGY STAR label must be clearly displayed in product literature (i.e., user manuals, consumer brochures, spec sheets, etc.) and on the manufacturer's Internet site where information about ENERGY STAR qualified models is displayed. It is also recommended that the label appear on the top/front of the product;
- offer and encourage training to distributors and/or contractors on the following issues: air distribution issues and their effect on equipment performance, refrigerant charging, proper installation of registers, duct work, and plenum to ensure low leakage and to meet insulation requirements, and proper use of the Manual N calculation, or other equivalent commercial load calculation, in order to encourage proper sizing of equipment;
- provide to EPA, on an annual basis, an updated list of ENERGY STAR qualifying light commercial HVAC models. Once the Partner submits its first list of ENERGY STAR labeled light commercial and central air conditioner models, the Partner will be listed as an ENERGY STAR Partner. Partner must provide annual updates in order to remain on the list of participating product manufacturers;
- provide to EPA, on an annual basis, unit shipment data or other market indicators to assist in determining the market penetration of ENERGY STAR. Specifically, Partner must submit the total number of ENERGY STAR qualified light commercial HVAC models shipped (in units by model) or an equivalent measurement as agreed to in advance by EPA and Partner. Partner is also encouraged to provide ENERGY STAR qualified unit shipment data segmented by meaningful product characteristics (e.g., capacity, size, speed, or other as relevant), total unit shipments for each model in its product line, and percent of total unit shipments that qualify as ENERGY STAR. The data for each calendar year should be submitted to EPA, preferably in electronic format, no later than the following March and may be provided directly from the Partner or through a third

party. The data will be used by EPA only for program evaluation purposes and will be closely controlled. If requested under the Freedom of Information Act (FOIA), EPA will argue that the data is exempt. Any information used will be masked by EPA so as to protect the confidentiality of the Partner;

- notify EPA of a change in the designated responsible party or contacts for light commercial HVAC within 30 days.

Performance for Special Distinction

In order to receive additional recognition and/or support from EPA for its efforts within the Partnership, the ENERGY STAR Partner may consider the following voluntary measures and should keep EPA informed on the progress of these efforts:

- consider energy efficiency improvements in company facilities and pursue the ENERGY STAR label for buildings;
- purchase ENERGY STAR labeled products. Revise the company purchasing or procurement specifications to include ENERGY STAR. Provide procurement officials' contact information to EPA for periodic updates and coordination. Circulate general ENERGY STAR labeled product information to employees for use when purchasing products for their homes;
- ensure the power management feature is enabled on all ENERGY STAR qualified monitors in use in company facilities, particularly upon installation and after service is performed;
- provide general information about the ENERGY STAR program to employees whose jobs are relevant to the development, marketing, sales, and service of current ENERGY STAR labeled product models;
- feature the ENERGY STAR label(s) on Partner Web site and in other promotional materials. If information concerning ENERGY STAR is provided on the Partner Web site as specified by the ENERGY STAR Web Linking Policy (this document can be found in the Partner Resources section on the ENERGY STAR Web site at www.energystar.gov), EPA may provide links where appropriate to the Partner Web site;
- provide a simple plan to EPA outlining specific measures Partner plans to undertake beyond the program requirements listed above. By doing so, EPA may be able to coordinate, communicate, and/or promote Partner's activities, provide an EPA representative, or include news about the event in the ENERGY STAR newsletter, on the ENERGY STAR Web pages, etc. The plan may be as simple as providing a list of planned activities or planned milestones that Partner would like EPA to be aware of. For example, activities may include: (1) increase the availability of ENERGY STAR labeled products by converting the entire product line within two years to meet ENERGY STAR guidelines; (2) provide information to users (via the Web site and user's manual) about energy-saving features and operating characteristics of ENERGY STAR qualified products; and (3) build awareness of the ENERGY STAR Partnership and brand identity by collaborating with EPA on one print advertorial and one live press event;
- provide quarterly, written updates to EPA as to the efforts undertaken by Partner to increase availability of ENERGY STAR qualified products, and to promote awareness of ENERGY STAR and its message.



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Eligibility Criteria

Below is the product specification for ENERGY STAR qualified light commercial HVAC equipment. Please note that the primary focus of this initiative is cooling efficiency; ENERGY STAR reserves the right to address heating efficiency at some later date and will coordinate with industry, as appropriate.

A product must meet all of the identified criteria if it is to be qualified as ENERGY STAR by its manufacturer.

- 1) **Definitions:** Below is a brief description of light commercial HVAC equipment and common measures of efficiency applicable to ENERGY STAR.
 - A. **Central Air Conditioner:** A central air-conditioner model consists of one or more factory-made assemblies that normally include an evaporator or cooling coil(s), compressor(s), and condenser(s). Central air conditioners provide the function of air-cooling, and may include the functions of air circulation, air cleaning, dehumidifying, or humidifying. For the purposes of this specification, both split system (i.e., a system with components located both inside and outside of a building) and single package units (i.e., a system that has all components completely contained in one unit) rated at 65,000 Btu/h or up to 250,000 Btu/h are eligible for the ENERGY STAR label. In addition, three-phase equipment rated below 65,000 Btu/h may qualify according to the specification in Section 3.
 - B. **Heat Pump:** A heat pump model consists of one or more factory-made assemblies that normally include an indoor conditioning coil(s), compressor(s), and outdoor coil(s), including means to provide a heating function. Heat pumps shall provide the function of air heating with controlled temperature, and may include the functions of air-cooling, air circulation, air cleaning, dehumidifying, or humidifying. For the purposes of this specification, both split system and single package units rated at 65,000 Btu/h or up to 250,000 Btu/h are eligible for the ENERGY STAR label. In addition, three-phase equipment rated below 65,000 Btu/h may qualify according to the specification in Section 3.
 - C. **Gas/Electric Package Unit:** A single package unit with gas heating and electric air conditioning that is often installed on a slab or a roof. For the purposes of this specification, units rated at 65,000 Btu/h or up to 250,000 Btu/h are eligible for the ENERGY STAR label assuming they meet the cooling portion of the specification in Section 3. In addition, three-phase equipment rated below 65,000 Btu/h may qualify according to the specification in Section 3.
 - D. **Cooling Capacity:** The cooling capacity is the quantity of heat in BTU (British Thermal Units) that an air conditioner or heat pump is able to remove from an enclosed space during a one-hour period.
 - E. **Energy Efficiency Ratio (EER):** EER is a measure of efficiency in the cooling mode that represents the ratio of total cooling capacity (Btu/hour) to electrical energy input (Watts). EER will be calculated according to the test procedure listed in Section 4.
 - F. **Coefficient of Performance (COP):** COP is a measure of efficiency in the heating mode that represents the ratio of total heating capacity (Btu) to electrical input (also in Btu). COP will be calculated according to the test procedure in Section 4.

- G. **Integrated Part-Load Value (IPLV):** IPLV is a measure of part-load performance for an air conditioner or heat pump. IPLV will be calculated according to the test procedure in Section 4.
- H. **Seasonal Energy Efficiency Ratio (SEER):** SEER is a measure of equipment energy efficiency over the cooling season. It represents the total cooling of a central air-conditioner or heat pump (in Btu) during the normal cooling season as compared to the total electric energy input (in watt-hours) consumed during the same period. SEER will be calculated according to the test procedure in Section 4.
- I. **Heating Seasonal Performance Factor (HSPF):** HSPF is a measure of a heat pump's energy efficiency over one heating season. It represents the total heating output of a heat pump (including supplementary electric heat) during the normal heating season (in Btu) as compared to the total electricity consumed (in watt-hours) during the same period. HSPF will be calculated according to the test procedure in Section 4.

- 2) **Qualifying Products:** For the purposes of ENERGY STAR, light commercial HVAC equipment includes the following: air-source air conditioners, air-source heat pumps, and gas/electric package units. As mentioned above, both split system and single package units rated at 65,000 Btu/h or up to 250,000 Btu/h are eligible for the ENERGY STAR label. As it's used primarily in commercial settings, three-phase equipment rated below 65,000 Btu/h may also qualify for the label.
- 3) **Energy-Efficiency Specification for Qualifying Products:** Products outlined in Tables 1 and 2 below may qualify as ENERGY STAR. Please note that where applicable products must meet both the EER and IPLV specification in order to be labeled as ENERGY STAR qualified.

Table 1: Criteria for ENERGY STAR Qualified Light Commercial Air Conditioners

Equipment Type	Size Category	Specification	Test Procedure
Air-Source Air Conditioner (3 phase)	<65,000 Btu/h	≥12 SEER (as of Jan. 1, 2002) ≥13 SEER (as of Jan. 1, 2004)	ARI 210/240
Air-Source Air Conditioner	≥65,000 Btu/h – <135,000 Btu/h	≥11.0 EER; 11.4 IPLV	ARI 210/240
Air-Source Air Conditioner	≥135,000 Btu/h – ≤250,000 Btu/h	≥10.8 EER; 11.2 IPLV	ARI 340/360

Gas/Electric Package Unit Note: To qualify for the ENERGY STAR label, a gas/electric package unit must meet the appropriate air conditioner specification based on its size category.

Table 2: Criteria for ENERGY STAR Qualified Light Commercial Heat Pumps

Equipment Type	Size Category	Specification	Test Procedure
Air-Source Heat Pump (3 phase)	<65,000 Btu/h	≥12 SEER; 7.6 HSPF (as of Jan. 1, 2002) ≥13 SEER; 7.7 HSPF (as of Jan. 1, 2004)	ARI 210/240
Air-Source Heat Pump	≥65,000 Btu/h – <135,000 Btu/h	≥10.1 EER (10.4 IPLV); 3.2 COP	ARI 210/240 COP rated at 47° F
Air-Source Heat Pump	≥135,000 Btu/h – ≤250,000 Btu/h	≥9.3 EER (9.5 IPLV); 3.1 COP	ARI 340/360 COP rated at 47° F

- 4) **Test Procedure:** The manufacturer shall perform energy-efficiency tests, or have tests performed by outside testing labs, as necessary, to determine which products comply. Based on the results of these

tests, the manufacturer shall self-certify those products that it determines are compliant with the specification outlined above. Light commercial air conditioners and heat pumps shall qualify under rating conditions in accordance with ARI 210/240 or ARI 340/360, as appropriate. The test procedure for each equipment type and size category is provided in Tables 1 and 2 of Section 3.

- 5) Effective Date: The date that manufacturers may begin to qualify products as ENERGY STAR is defined as the *effective date* of the agreement. The ENERGY STAR Light Commercial HVAC specification is effective on January 1, 2002. A manufacturer has one year after signing the Partnership Agreement to ensure that at least one ENERGY STAR qualified light commercial HVAC model appears on the ENERGY STAR qualified product list.

For three-phase models, a revised specification will take effect on January 1, 2004. All products shipped after this date, including models originally qualified under the 12 SEER specification, must meet the 13 SEER specification in order to bear the ENERGY STAR label (including additional shipments of models originally qualified under 12 SEER).

- 6) Future Specification Revisions: ENERGY STAR reserves the right to change the specification should technological and/or market changes affect its usefulness to consumers, industry, or the environment. In keeping with current policy, revisions to the specification are arrived at through industry discussions.

In January 2003, the ENERGY STAR program will begin a review of the 13 SEER specification for three-phase models, which is to take effect on January 1, 2004. During this evaluation process, ENERGY STAR will determine if the 13 SEER specification will effectively recognize the appropriate mix of energy-efficient models and their manufacturers. If necessary, the specification may be revised based on manufacturers' market data and reissued. Prior to and during this time frame, industry will have an opportunity to share its data, submit proposals, and voice any concerns.

ENERGY STAR believes that air-source heat pump equipment ($\geq 65,000$ - $\leq 250,000$ Btu/h) has the potential for further energy-efficiency improvements in the near term (e.g., next two years) and will track the market and review its specifications accordingly.